

CLAIMS

What is claimed is:

1. A graft retaining system for retaining a graft in a bone tunnel comprising:
a graft block having a proximal end and a distal end, the graft block being
5 sized to fit within the bone tunnel, the graft block including a support surface
near the distal end for supporting an intermediate connector, at least one
connector hole being formed through the support surface;
an intermediate connector connecting a predetermined portion of the graft and
a predetermined portion of the graft block, the intermediate connector forming
10 a loop supported by the support surface of the graft block, the loop having a
first end and a second end, at least one of the first and second ends being
threaded through the at least one connector hole and secured in the connector
hole; and
means for attaching the graft block adjacent the bone tunnel at a
15 predetermined point along the length of the tunnel, the means for attaching
being situated transverse to the axis of the bone tunnel.

2. The graft retaining system of claim 1 wherein the support surface comprises a
convex surface bounded on at least two sides by projecting side walls to retain the
intermediate connector on the convex surface, wherein said intermediate connector is a
20 suture-like material and wherein a pair of connector holes is formed through the support
surface generally parallel to the side walls from a first portion of the convex surface to a
second portion of the convex surface, each of the holes being countersunk at at least one end

such that the ends of the intermediate connector may be knotted and pulled back into the countersunk ends of the holes.

3. A graft retaining system for retaining a graft in a bone tunnel comprising:

a graft block having a proximal end and a distal end, the graft block including
5 a graft support surface adjacent the distal end for supporting the graft, the
graft block being sized to fit within the bone tunnel; and

tunnel attachment means for attaching the graft block adjacent the bone tunnel
at a predetermined point along the length of the tunnel, the tunnel attachment
means being situated transverse to the axis of the bone tunnel, the tunnel
10 attachment means being located proximally of the graft support surface such
that tensile forces on the graft result in compressive forces on the graft block
between the graft support surface and the tunnel attachment means.

4. The graft retaining system of claim 3 wherein the support surface comprises a
convex surface bounded by distally projecting side walls.

15 5. The graft retaining system of claim 3 further including a suture receiving hole
near the distal end.

6. The graft retaining system of claim 3 wherein the tunnel attachment means
comprises an abutment surface at the proximal end of the graft block that abuts a pin placed
transversely across the bone tunnel.

20 7. The graft retaining system of claim 6 wherein the abutment surface comprises
an open groove formed transversely across the proximal end of the graft block.

8. The graft retaining system of claim 3 wherein a pair of sockets is formed in
the proximal end of the graft block.

9. The graft retaining system of claim 8 further comprising a pushing member including a flat, elongate body having a first end and a second end, the first end including a pair of prongs engageable with the pair of sockets such that the pushing member may be positioned with the graft extending along the pushing member body and the pushing member
5 may be used to push the graft block and graft into the bone tunnel.

10. The graft retaining system of claim 9 further comprising
a base member, the second end of the pushing member being engageable with
the base member to position the first end in a predetermined position and
orientation relative to the base member; and

10 a guide connected to the base member and being aligned with the abutment
surface of the graft block when the graft block is engaged with the pushing
member and the pushing member is engaged with base member.

11. The graft retaining system of claim 9 wherein the prongs are retractable to
disengage the graft block.

15 12. A method for securing a graft in a bone tunnel comprising:
providing a graft block having a saddle shaped body having a distal end over
which the graft is placed and a proximal end opposite the distal end;
placing the graft over the distal end of the graft block with the graft extending
proximally past the proximal end of the graft block;
20 providing a transverse member for abutting the proximal end of the graft
block;
fitting the graft block and graft into the bone tunnel; and

inserting the transverse member across the bone tunnel to abut the proximal end of the graft block and fix the location of the graft block within the bone tunnel.

13. The method of claim 12 further comprising:

5 forming a transverse bone hole intersecting the bone tunnel;
providing an instrument including a pushing member engageable with the graft block in fixed longitudinal and rotational orientation to push the graft block into the bone tunnel and including a transverse guide member connected to the pushing member in predetermined known orientation, the guide
10 member being in transverse alignment with the proximal end of the graft block when the graft block is engaged with the pushing member;
engaging the pushing member with the graft block;
pushing the graft block into the bone tunnel;
setting the insertion depth and rotational alignment of the graft block by
15 aligning the guide member with the transverse bone hole.

14. The method of claim 13 further comprising:

providing a locator rod having a body with a first end and a second end, the locator rod first end being engageable with the transverse bone hole to establish a reference to the transverse bone hole location and orientation, the
20 locator rod body being engageable with the guide member to align the proximal end of the graft block with the bone hole.